

MONITORING CIRCADIAN ACTIVITY

ABSTRACT OF THE INVENTION

The invention is directed to a new method for long-term measurement of daily serotonin (5-HT) and melatonin contents in the pineal gland. The disclosed method allows visualization of the pineal gland for accurate targeting of the guide cannula which minimizes bleeding, incurs no direct injury to the surrounding brain tissue and cause no interference with the sympathetic innervation from the superior cervical ganglion. The improved method allows effects of pharmacological agents on *in vivo* pineal gland circulation to be studied reproducibly over time and gene expression profiles correlated with physiological consequences in the same or different individuals. More importantly, the method allows accurate assessment of the endogenous circadian clock function. The method can be used for high throughput screening to identify candidate agents which may accelerate adaptation to new time zones, to alleviate symptoms resulting from jet lag, frequent shift work sleep abnormalities and seasonal affective illnesses.